

Find solutions for your homework

home / study / science / physics / physics questions and answers / item 2 2of6 > part a a rookie quarterback throws a football with an initial up...

Question: Item 2 2of6 > Part A A rookie quarterback throws a football...

(7 bookmarks)

Item 2

2 of 6

Constants

A rookie quarterback throws a football with an initial upward velocity component of 16.2 m/s and a horizontal velocity component of 20.4 m/s. Ignore air resistance.

Part A

How much time is required for the football to reach the highest point of the trajectory?
Express your answer using three significant figures.

s

Part B

How high is this point?
Express your answer using three significant figures.

m

Part C

How much time (after it is thrown) is required for the football to return to its original level?
Express your answer using three significant figures.

s

Part D

How does this compare with the time calculated in part (a).
Express your answer using three significant figures.

Part E

How far has it traveled horizontally during this time?

Part E

How far has it traveled horizontally during this time?
Express your answer using three significant figures.

m

[Provide Feedback](#)

[Next >](#)

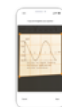
Post a question

Answers from our experts for your toughest homework questions

Enter question

Continue to post

16 questions remaining



Snap a photo from your phone to post a question

We'll send you a one-time download link

888-888-8888

[Text me](#)

By providing your phone number, you agree to receive a one-time automated text message with a link to get the app. Standard messaging rates may apply.

My Textbook Solutions



University Physics
14th Edition



Marketing Channels
8th Edition



Fluid Mechanics...
10th Edition

[View all solutions](#)

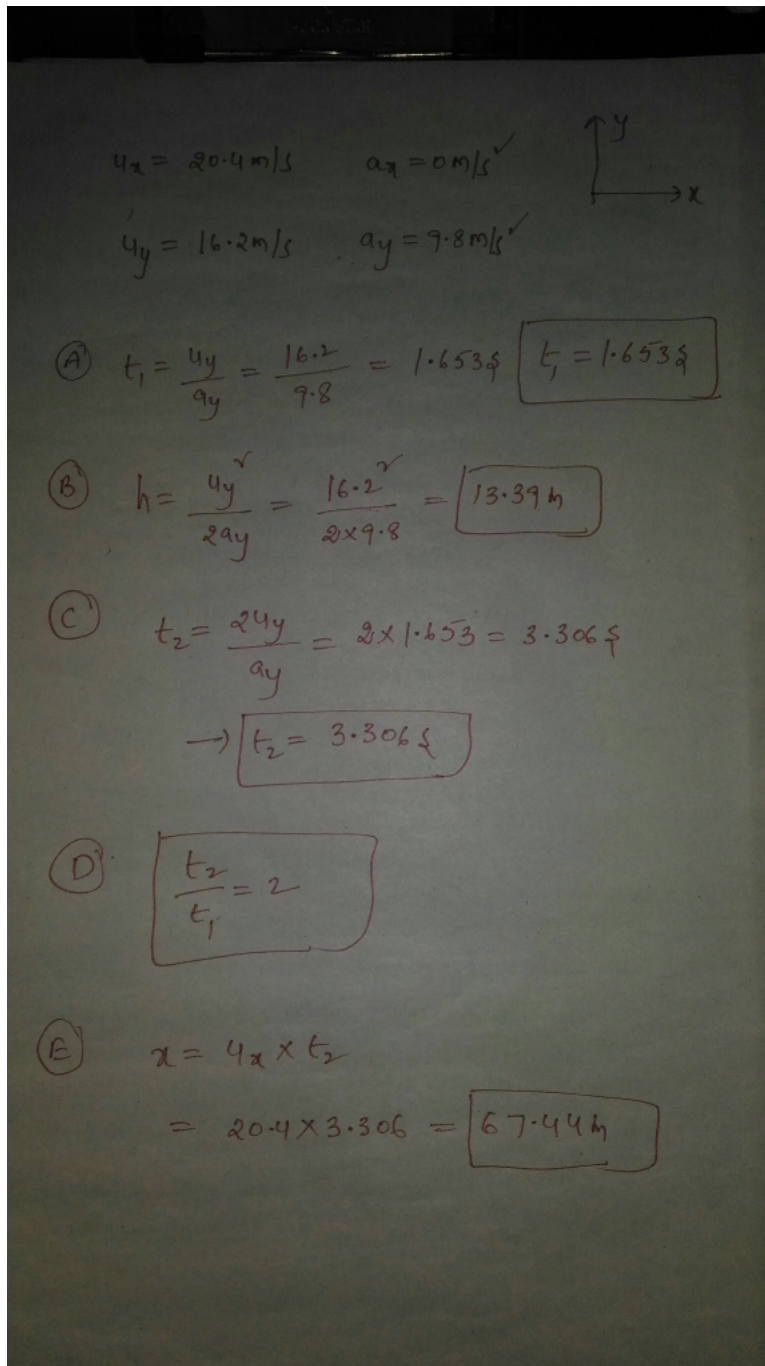


Vijaykumar answered this
4,298 answers

Was this answer helpful?

 13

 0



$u_x = 20.4 \text{ m/s}$ $a_x = 0 \text{ m/s}^2$

$u_y = 16.2 \text{ m/s}$ $a_y = 9.8 \text{ m/s}^2$

A coordinate system is shown with the x-axis horizontal and the y-axis vertical.

(A) $t_1 = \frac{u_y}{a_y} = \frac{16.2}{9.8} = 1.653 \text{ s}$ $t_1 = 1.653 \text{ s}$

(B) $h = \frac{u_y^2}{2a_y} = \frac{16.2^2}{2 \times 9.8} = 13.39 \text{ m}$

(C) $t_2 = \frac{2u_y}{a_y} = 2 \times 1.653 = 3.306 \text{ s}$
 $\rightarrow t_2 = 3.306 \text{ s}$

(D) $\frac{t_2}{t_1} = 2$

(E) $x = u_x \times t_2$
 $= 20.4 \times 3.306 = 67.44 \text{ m}$

[View comments \(1\) >](#)

Practice with similar questions

Q: Constants A rookie quarterback throws a football with an initial upward velocity component of 16.6 m/s and a horizontal velocity component of 20.4 m/s. Ignore air resistance. How long is the football in the air? Express your answer using three significant figures. Submit Request Answer Part B How high is this point...



Up next for you in Physics

Please show work!

1. What is the magnitude of the gravitational force of the Earth on the moon? How does this compare to the gravitational force of the moon on the Earth?
2. What is the centripetal acceleration of the moon?
3. What is the orbital speed (v) of the moon?
4. What is the orbital period (T) of the moon in days?
5. What is the acceleration due to gravity (g) on the surface of the moon? Hint: it is NOT 9.8 m/s²!

It is easiest to solve 1-4 in order!

$M_{\text{Earth}} = 6 \times 10^{24} \text{ kg}$
 $M_{\text{Moon}} = 7 \times 10^{22} \text{ kg}$
 $R_{\text{Moon}} = 1,700 \text{ km}$

[See answer](#)

Which ball, dropped or thrown horizontally, (if either) has the greatest speed at the moment of impact? The dropped ball Both balls have

[See answer](#)

[See more questions for subjects you study](#)

Questions viewed by other students

Q: A rookie quarterback throws a football with an initial upward velocity component of 15.0 m/s and a horizontal velocity component of 21.0 m/s. Ignore air resistance Part C How much time later it is thrown) is required for the football to return to its original level? Express your answer in seconds. 70 AED ? to - 2.3409 Submit Previous Answers Request Answer X Incorrect; Try Again:...

A: [See answer](#)

Q: KHomework 4: 2D Kinematics Exercise 3.12 Constants A rookie quarterback throws a football with an initial upward velocity component of 15.5 m/s and a horizontal velocity component of 21.9 m/s Ignore air resistance.

A: [See answer](#) 100% (4 ratings)

[Show more](#) ▼

COMPANY ▼

LEGAL & POLICIES ▼

CHEGG PRODUCTS AND SERVICES ▼

CHEGG NETWORK ▼

CUSTOMER SERVICE ▼



© 2003-2021 Chegg Inc. All rights reserved.

